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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,630	01/12/2004	Christian Jackson	IJ0049USNA	9393

23906 7590 02/22/2007  
E I DU PONT DE NEMOURS AND COMPANY  
LEGAL PATENT RECORDS CENTER  
BARLEY MILL PLAZA 25/1128  
4417 LANCASTER PIKE  
WILMINGTON, DE 19805

EXAMINER
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MARTIN, LAURA E

ART UNIT	PAPER NUMBER
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2853

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/22/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/755,630	JACKSON ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Laura E. Martin	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-8, 10, 14, 15, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuragi et al. (EP 1125994) in view of Yue et al. (US 6461418).

#### **Katsuragi et al. discloses the following claim limitations:**

As per claims 1 and 10, Katsuragi et al. teaches an inkjet ink set and method of inkjet printing a substrate comprising the steps of jetting an ink set onto a substrate, the ink set comprising: a first ink comprising a self-dispersing pigment colorant dispersed in a first aqueous vehicle [0020] and [0057]; and a fixing fluid comprising a soluble copper salt in a second aqueous vehicle [0049].

As per claims 5, 6, and 17, Katsuragi et al. teaches the ink set and method of claims 1 and 10 further comprising at least four differently colored aqueous pigmented inks, at least one of the colored ink being a first ink ([0051] and [0053]).

As per claims 8 and 19, Katsuragi et al. teaches a self-dispersing carbon black pigment comprising anionic hydrophilic moieties [0118].

#### **Katsuragi et al. does not disclose the following claim limitation:**

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As per claims 1 and 10, Katsuragi et al. does not teach a soluble polymer binder.

As per claims 2 and 14, Katsuragi et al. does not teach a soluble polymer binder.

As per claims 3 and 15, Katsuragi et al. does not teach a binder being substantially linear, anionic polymer having a number average molecular weight in the range of 1000-20000.

**Yue et al. discloses the following claim limitations:**

As per claims 1 and 10, Yue et al. teaches a comprising a soluble polymer binder (claim 5).

As per claims 2 and 14, Yue et al. teaches a soluble polymer binder (claim 5).

As per claims 3 and 15, Yue et al. teaches a binder being substantially linear, anionic polymer having a number average molecular weight in the range of 1000-20000 (column 4, lines 15-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink set and method taught by Katsurgai et al. with the disclosure of Yue et al. in order to create a higher quality ink with higher levels of water fastness, light fastness, and rub resistance.

As per claims 7 and 18, Katsuragi et al. as modified discloses the claimed invention except for the soluble copper in the fixing fluid present at a level of at least 0.05 mole/L. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the range of concentrations, since it would have been held that where the general conditions of the claim are disclosed in the prior art,

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discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller* 105 USPQ 233.

Claims 4 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuragi et al. (EP 1125994) and Yue et al. (US 6461418), and further in view of Ota et al. (US 20020075369)

**Katsuragi et al. as modified discloses:**

Katsuragi et al. as modified teaches an ink set. Katsuragi et al. also teaches a dispersant (commonly applied to ink as a binder) having an number average molecular weight in the range of 1000 to 20000 [0055].

**Katsuragi et al. as modified does not disclose:**

The ink comprising an effective amount of a multivalent cation.

**Ota et al. discloses the following claim limitations:**

The ink comprising an effective amount of a multivalent cation [0043].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink set and method taught by Katsuragi et al. as modified with the disclosure of Ota et al. in order to reduce sedimentation.

Claims 9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuragi et al. (EP 1125994) and Yue et al. (US 6461418), and further in view of Suzuki et al. (US 6153001).

Katsuragi et al. as modified teaches a self-dispersing pigment; however, it does not disclose anionic hydrophilic moieties being carboxyl groups.

Suzuki et al. discloses anionic hydrophilic moieties being carboxyl groups (column 7, lines 35-52).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink set and method taught by Katsuragi et al. as modified with the disclosure of Suzuki et al. in order to create a higher quality ink with better stability.

Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuragi et al. (EP 1125994) and Yue et al. (US 6461418) in view of Katsuragi et al. (EP 1191077).

Katsuragi et al. ('994) teaches the method of claim 10; however, it does not teach the fixing fluid jetted onto the substrate before the first ink, and the area of the substrate covered by the fixing fluid is substantially covered by the first ink; the area fill of the fixing fluid is less than the area fill of the first ink; and the fixing fluid is applied at an area fill of less than about 60% of the area fill of the first ink.

Katsuragi et al. ('077) teaches the fixing fluid jetted onto the substrate before the first ink, and the area of the substrate covered by the fixing fluid is substantially covered by the first ink [0071]; the area fill of the fixing fluid is less than the area fill of the first ink [0073]; and the fixing fluid is applied at an area fill of less than about 60% of the area fill of the first ink [0073].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Katsuragi et al. ('944) as modified with the disclosure of Katsuragi et al. ('077) in order to improve printing quality.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

The examiner notes that the Koitabashi et al. patent number should have been 6557991 and has cited it in the PTO-892 form.

The examiner would like to make a note that either a soluble polymer binder or an effective amount of a multivalent cation is needed to read on the claim limitations of claims 1 and 10.

The examiner would also like to thank the applicant for advising that claim 9 can stand rejected under Katsuragi et al.; however, the examiner disagrees. Katsuragi et al. discloses hydrophilic moieties on the self-dispersing carbon black pigment are COONa; however, there are no carboxyl groups disclosed (COONa is not a carboxyl group).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Laura E. Martin

 2/16/07  
**MANISH S. SHAH**  
**PRIMARY EXAMINER**